

Specifications

IN1608 xi

Video input

Number/signal type	
Local input	2 RGB, RGBcvs, component video (YUVi/YUVp/HDTV), S-video, composite 4 HDMI/DVI
Remote inputs.....	2 DTP 330
Connectors.....	2 female 15-pin HD 4 female HDMI type A 2 female RJ-45 connectors
HDMI equalization.....	Automatic
HDMI input cable length.....	Up to 75' (22.9 m) for all supported input rates
Nominal level.....	1 Vp-p for Y of component video and S-video, and for composite 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels.....	Analog: 0.0 V to 1.0 Vp-p with no offset at unity gain
Impedance.....	75 ohms
Horizontal frequency	15 kHz to 100 kHz
Vertical frequency.....	24 Hz to 75 Hz
Resolution range.....	640x480 to 1600x1200 and 1920x1200* NTSC, PAL, SECAM, 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, and 2K *reduced blanking
Return loss	>30 dB @ 5 MHz
DC offset (max. allowable).....	1.5 V
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM, DVI 1.0, HDMI 1.3, HDCP 1.4

Video processing

Decoder.....	12 bit digital (3D adaptive comb filter)
Analog sampling	12 bits per color; 13.5 MHz standard (video) 170 MHz standard (RGB)
Digital pixel data bit depth.....	8, 10, or 12 bits per channel; 165 MHz pixel clock (HDMI)
Colors.....	1 billion (10 bit processing)

Video output

Number/signal type	
Local output	2 HDMI/DVI
Remote output	1 DTP 330 or HDBaseT (configurable)
Connectors.....	2 female HDMI type A 1 female RJ-45 connector
HDMI peripheral device power	200 mA per output
Scaled resolution	640x480 ^{6,8,9} , 800x600 ^{6,8,9} , 852x480 ^{6,8,9} , 1024x768 ^{6,8,9} , 1024x852 ^{6,8,9} , 1024x1024 ^{6,8,9} , 1280x768 ^{6,8,9} , 1280x800 ^{6,8,9} , 1280x1024 ^{6,8,9} , 1360x765 ^{6,8,9} , 1360x768 ^{6,8,9} , 1365x768 ^{6,8,9} , 1365x1024 ^{6,8,9} , 1366x768 ^{6,8,9} , 1400x1050 ^{6,8} , 1440x900 ^{6,8,9} , 1600x900 ^{6,8} , 1600x1200 ^{6,8} , 1680x1050 ^{6,8} , 1920x1200 ^{6,8} HDTV 480p ^{7,8} , 576p ⁶ , 720p ^{3,4,5,6,7,8} , 1080i ^{6,7,8} , 1080p ^{1,2,3,4,5,6,7,8} , 2048x1080 ^{1,2,3,4,5,6,7,8} ¹ = at 23.98 Hz, ² = at 24 Hz, ³ = at 25 Hz, ⁴ = at 29.97 Hz, ⁵ = at 30 Hz, ⁶ = at 50 Hz, ⁷ = at 59.94 Hz, ⁸ = at 60 Hz, ⁹ = at 75 Hz
Standards	DVI 1.0, HDMI 1.3, HDCP 1.4

Specifications • IN1608 xi (Continued)

Sync

Input type	RGBHV, RGBS, RGsB, RGBcvS, bi-level or tri-level component video
Input standards.....	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	2.75 V to 5.0 Vp-p for RGBHV or RGBS 0.6 Vp-p for component video with tri-level sync 0.3 Vp-p for component video with bi-level sync or RGsB
Input impedance.....	Horizontal: 510 ohms Vertical: 510 ohms
Max. input voltage.....	5.0 Vp-p

Shielded twisted pair interconnection

Connectors	3 female RJ-45
Termination standard.....	TIA/EIA-T568B
Signal transmission distance	
DTP 330.....	Up to 330' (100 m) using shielded twisted pair cable or XTP DTP 24 STP cable
HDBaseT.....	Up to 330' (100 m) using shielded twisted pair cable or XTP DTP 24 STP cable
Cable requirements.....	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth, STP (shielded twisted pair)

NOTE: Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance.

NOTE: Output signals:

DTP: HDMI with embedded audio, analog audio, RS-232 and IR, and remote power

HDBaseT: HDMI with embedded audio, RS-232, and IR

Audio

Gain.....	Unbalanced output: -6 dB; balanced output: 0 dB
Frequency response	20 Hz to 20k Hz, ± 0.5 dB
THD + Noise	<0.1%, 20 Hz to 20k Hz at nominal level
S/N.....	>90 dB at maximum balanced output (unweighted)
Crosstalk	≤ -80 dB @ 1 kHz, fully loaded
Stereo channel separation.....	>80 dB @ 1 kHz
Bass	+12 dB to -24 dB @ 100 Hz
Treble.....	+12 dB to -24 dB @ 8 kHz
Supported formats	
Analog de-embedding.....	LPCM up to 2.0/24-bit/96 kHz
HDMI pass-through.....	LPCM up to 7.1/24-bit/192 kHz, Dolby Atmos, Dolby TrueHD, and Dolby legacy formats; DTS:X, DTS-HD Master Audio, DTS 96/24, and DTS legacy formats

Audio input

Number/signal type.....	8 stereo line level balanced or unbalanced 2 mono mic/line level balanced or unbalanced (with available phantom power) 4 stereo, de-embedded from HDMI (PCM only) 2 DTP (de-embedded from HDMI [PCM only], or remote balanced/unbalanced, analog)
Connectors	(6) 3.5 mm captive screw connectors, 5 pole for line (2) 3.5 mm captive screw connectors, 3 pole for mic/line 4 female HDMI type A 2 female RJ-45 connectors
Impedance.....	>10k ohms unbalanced, >20k ohms balanced
Nominal level.....	Line inputs: +4 dBu, -10 dBV, adjustable Mic/line inputs: -60 dBV, +4 dBu, -10 dBV, adjustable
Maximum level.....	+21 dBu at rated THD+N when input gain is set to 0 dB
CMRR.....	>80 dB @ 1 kHz

Specifications • IN1608 xi (Continued)

Input gain adjustment.....	Line inputs: -18 dB to +24 dB, 1 dB steps, adjustable per input Mic/line inputs: -18 dB to +60 dB, 1 dB steps, adjustable per input LPCM-2Ch: -18 dB to +24 dB, 0.1 dB steps, adjustable per input
----------------------------	--

NOTE: Unbalanced analog inputs applied at a DTP transmitter input have +12 dB of gain applied to bring the signal to a nominal level for balanced operation.

DC phantom power	+48 VDC \pm 10% (can be switched on or off per mic/line input)
------------------------	--

Audio output

Number/signal type	
Local outputs	1 balanced or unbalanced stereo (variable) 1 balanced or unbalanced stereo; can be configured as stereo or two independently mixed mono channels 2 HDMI embedded
Remote output	1 DTP (embedded digital and remote balanced/unbalanced analog) or 1 HDBaseT (embedded digital)
Connectors	(2) 3.5 mm captive screw connectors, 5 pole 2 female HDMI type A 1 RJ-45 connector
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Gain error.....	\pm 0.5 dB channel to channel
Maximum level (Hi-Z).....	>+20 dBu, balanced; >+14 dBu, unbalanced
Output volume range	0 to -100 dB in 1 dB steps

NOTE: System gain for the analog DTP receiver output is rated at -12 dB (unbalanced) and -6 dB (balanced).

Audio output — power amplifier (MA and SA models only)

Number/signal type	
Stereo models.....	1 stereo (default) or 2 mono (2 channels total)
Mono models	1 mono, 70 V line
Connectors	

NOTE: This connector accepts wires of 22 AWG to 12 AWG.

Stereo models.....	(1) 5 mm screw lock captive screw connector, 4 pole
Mono models	(1) 5 mm screw lock captive screw connector, 2 pole
Load impedance	
Stereo models.....	4 ohms minimum
Mono models	50 ohms minimum
High pass filter — MA models only.	100 Hz, 12 dB/octave roll off
Frequency response	
Stereo models.....	20 Hz to 20 kHz, -3 dB to +1 dB @ 1 W
Mono models	100 Hz to 20 kHz, -3 dB to +1 dB @ 1 W
THD + Noise	<0.1% @ 1 kHz, 3 dB below clipping
S/N.....	>90 dB, 20 Hz to 20 kHz, unweighted
Amplifier type	Class D
Output power	
Stereo models.....	25 watts per channel, 8 ohms, 1 kHz, 0.1% THD 50 watts per channel, 4 ohms, 1 kHz, 0.1% THD
Mono models	100 watts (rms) @ 70 V, 1 kHz, 0.1% THD
Protection	Clip limiting, thermal, short circuit, DC output

Specifications • IN1608 xi (Continued)

Communications — scaling presentation switcher

Serial control port.....	1 bidirectional RS-232, 3.5 mm captive screw connector, 3 pole (rear panel)
Baud rate and protocol.....	9600, 8 data bits, 1 stop bit, no parity (default)
Serial control pin configuration	1 = Tx, 2 = Rx, 3 = Gnd
USB control port.....	1 front panel female mini USB B
USB standards	USB 2.0, high speed
All models except IPCP models	
Ethernet control port.....	1 female RJ-45 connector
Ethernet protocol	ARP, DHCP, DNS, HTTP (redirect), HTTPS, IEEE 802.1X, ICMP, NTP, SFTP, SMTP, SNMP, SSH, TCP/IP, Telnet, UDP/IP
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Ethernet default settings	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Gateway = 0.0.0.0 DHCP = off
Program control.....	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™) Microsoft® Internet Explorer®

Communications — external device (pass-through, unidirectional or bidirectional) (RS-232/IR over DTP or RS-232/IR over HDBT)

NOTE: Protocol is mirrored between the connected twisted pair endpoints and the "Over DTP" or "Over TP" ports on the IN1608 xi. Signals from a control device pass into each IN1608 xi "Over DTP" or "Over TP" port, are embedded with the twisted pair signal, and sent to individual twisted pair Tx or Rx endpoints for control of remote sink or source devices. The "Over DTP" or "Over TP" IR connections are simply pass-through connections to twisted pair endpoints, and there is no IR insert from any IN1608 xi control port to "Over DTP" or "Over TP" ports. RS-232 can be inserted from the IN1608 xi Ethernet connection.

Serial control pass-through ports	
IN1608 xi input/DTP Tx	RS-232 via (2) 3.5 mm, 5 pole captive screw connectors (shared with IR ports)
IN1608 xi output/TP Rx	RS-232 via (1) 3.5 mm, 5 pole captive screw connector (shared with IR port)
Baud rates.....	Up to 115200 baud
Protocol.....	6 - 8 data bits 1 or 2 stop bits no parity (default) even or odd parity flow control = XON, XOFF, none
Serial control pin configuration	1 = Tx, 2 = Rx, 3 = Gnd
IR pass-through control ports.....	TTL level (0 to 5 V) modulated infrared control from 30 kHz up to 60 kHz
IN1608 xi input/DTP Tx	(2) 3.5 mm captive screw connectors, 5 pole (shared with RS-232 ports)
IN1608 xi output/TP Rx	(1) 3.5 mm captive screw connector, 5 pole (shared with RS-232 port)
IR control pin configuration	3 = Gnd, 4 = IR Tx, 5 = IR Rx

Communications — IPCP Pro dual-NIC embedded control processor — IPCP models only

Control processor	
IPCP models.....	IPCP Pro 355M
IPCP Q models.....	IPCP Pro 355MQ xi
Memory	
SDRAM	
IPCP models.....	512 MB
IPCP Q models.....	2 GB
Flash	
IPCP models.....	4.5 GB
IPCP Q models.....	8 GB

Specifications • IN1608 xi (Continued)

Software and control options

Software.....	Extron Global Configurator® Plus and Professional for Windows®
Control options.....	GlobalViewer®, Extron control for iPad and web, or TouchLink Pro touchpanels, or eBUS® button panels

Ethernet control

Network interface controllers (NICs)	2: 1 LAN, 1 AV LAN
Network switch	1 AV unmanaged 3 port switch
Connectors	LAN: 1 female RJ-45 connector AV LAN: 3 female RJ-45 connectors
Data rate	10/100/1000Base-T, half/full duplex with autodetect
Protocols.....	ARP, DHCP, DNS, HTTP (redirect), HTTPS, IEEE 802.1X, ICMP, NTP, SFTP, SMTP, SNMP, SSH, TCP/IP, UDP/IP

Default settings

LAN	Link speed and duplex level = autodetected IP address = 192.168.253.250 Subnet mask = 255.255.255.0 Gateway = 0.0.0.0 DHCP = off DNS: 127.0.0.1
AV LAN.....	Link speed and duplex level = autodetected IP address = 192.168.254.250 Subnet mask = 255.255.255.0 Gateway = 0.0.0.0 DHCP server = disabled DNS: 127.0.0.1
DHCP server disabled ...	IP address = 192.168.254.250 DNS: 127.0.0.1
DHCP server enabled....	IP address = 192.168.254.1 Dynamic leased IP address pool = 192.168.254.100 - 192.168.254.149 Maximum lease count = 50 Lease time = 24 hours

Serial control

Quantity/type.....	1 bidirectional RS-232, RS-422, RS-485 (port 1) 2 bidirectional RS-232 (ports 2 and 3)
Connectors	(1) 3.5 mm captive screw connector, 5 pole (2) 3.5 mm captive screw connectors, 3 pole
Baud rate and protocol.....	300 to 115200 baud (9600 baud = default); 8 (default) or 7 data bits; 1 (default) or 2 stop bits; no parity (default), even, or odd parity

NOTE: The 5-pole ports support both hardware and software flow control.
The 3-pole ports support software flow control.
The default for both types of ports is no flow control.

Pin configurations, serial, 5-pole captive screw

RS-232 (default).....	Pin 1 = Tx, 2 = Rx, 3 = Gnd, 4 = RTS, 5 = CTS
RS-422.....	Pin 1 = Tx-, 2 = Rx-, 3 = Gnd, 4 = Tx+, 5 = Rx+
RS-485.....	Pins 1 and 2 (tied together) = data-, 3 = Gnd, 4 and 5 (tied together) = data+

Pin configurations, serial,

3-pole captive screw	Pin 1 = Tx, 2 = Rx, 3 = Gnd
----------------------------	-----------------------------

Digital I/O control

Quantity/type.....	4 digital input/output (configurable)
Connectors	(1) 3.5 mm captive screw connector, 5 pole

Specifications • IN1608 xi (Continued)

Digital inputs	
Input voltage range	0 to 24 VDC, clamped at +30 VDC
Input impedance.....	>10k ohms
Programmable pullup.....	1k ohms to +5 VDC
Threshold low to high.....	>2.8 VDC
Threshold high to low.....	<2.0 VDC
Digital outputs	250 mA sink from 24 VDC max.
Pin configurations.....	1, 2, 3, 4 = digital I/Os 1, 2, 3, 4; 5 = Gnd
IR/serial control	
Quantity/type.....	2 programmable: unidirectional RS-232 (± 5 V), or TTL level (0 to 5 V) infrared (carrier and non-carrier) up to 300 kHz
Connector	(1) 3.5 mm captive screw connector, 5-pole
Baud rate and protocol (RS-232).....	300 to 115200 baud (9600 baud = default); 8 (default) or 7 data bits; 1 (default) or 2 stop bits; no parity (default), even, or odd parity
Pin configurations.....	For each port, pin 1 = signal, 2 = Gnd
IR output carrier frequency	30 kHz to 300 kHz
Relay control	
Quantity/type.....	4 normally open relays
Relay control connectors.....	(1) 3.5 mm captive screw connector, 6 pole
Relay control contact rating.....	24 VDC, 1 A
eBUS control	
eBUS control ports.....	(1) 3.5 mm captive screw connector, 5 pole (uses 4 poles)
eBUS pin configuration.....	+V = +12 VDC; +S = + signal; -S = - signal; G = ground
Recommended cable type.....	Extron STP20-2/1000 or STP20-2P/1000 cable
Maximum system cable length	1000 feet (305 meters) sum total for the eBUS system, regardless of topology. Power injection may be required depending on system cabling topology and primary power supply wattage. See the eBUS Technology Reference Guide for details.
eBUS power output.....	6 watts

General

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption	
Full load (amp output at 1/8 power)	
IN1608 xi	42 watts
All xi amplifier models except IPCP models	67 watts
All xi IPCP models.....	76 watts
Power save mode	
IN1608 xi	<33 watts
All xi amplifier models except IPCP models	<42 watts
All xi IPCP models.....	<47 watts
Remote power capability	
HDBaseT mode.....	Supports up to two endpoints (two DTP Tx)
DTP mode.....	Supports up to three endpoints (two DTP Tx, one DTP Rx)
Ambient temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Fans, air flows right to left (as viewed from front panel)

Specifications • IN1608 xi (Continued)

Thermal dissipation

Full load (amp output at 1/8 power)

IN1608 xi.....	123 BTU/hr
All xi amplifier models except IPCP models	149 BTU/hr
All xi IPCP models.....	179 BTU/hr

Power save mode

IN1608 xi.....	<94 BTU/hr
All xi amplifier models except IPCP models	<110 BTU/hr
All xi IPCP models.....	<144 BTU/hr

Mounting

Rack mount..... Yes, with included, pre-installed brackets

Enclosure type..... Metal

Enclosure dimensions

IN1608 xi.....	1.72" H x 17.5" W x 9.5" D (1U high, full rack wide) (44 mm H x 444 mm W x 241 mm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
All other models.....	3.47" H x 17.5" W x 9.5" D (2U high, full rack wide) (88 mm H x 444 mm W x 241 mm D) (Depth excludes connectors and knobs. Width excludes rack ears.)

Product weight

IN1608 xi.....	5.0 lbs (2.3 kg)
All amplifier models except IPCP models.....	7.4 lbs (3.4 kg)
All IPCP models.....	7.9 lbs (3.6 kg)

Regulatory compliance..... CE, c-UL, UL, C-tick, FCC Class A, ICES, VCCI, RoHS, WEEE

Warranty 3 years parts and labor

Everlast power supply warranty..... 7 years parts and labor

NOTE: All nominal levels are at $\pm 10\%$.

NOTE: Specifications are subject to change without notice.

NOTE: Shipping weights and dimensions are available at www.extron.com.

5941-D7